

Appl. No. 10/624,852
Amdt. Dated August 16, 2007
Reply to Office Action of May 16, 2007

Amendments to the Drawings:

The attached sheet of drawings (found in the Appendix) includes changes to Figs. 2 and 3

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

REMARKS/ARGUMENTS

The present application discloses an apparatus, method and program product for analyzing a digital image for consumer identifying characteristics, and generating advertisements specifically tailored to the consumer based on the identifying characteristics of the digital image. The analysis of the digital image involves object recognition, text recognition and metadata analysis of a selected digital image. The present invention may be implemented, for example, within a photo kiosk, or digital minilab. The generated advertisements may utilize a variety of media, including on-screen displays on the photo kiosk, a customized coupon, or a photo jacked insert.

Reconsideration of the application, as amended, is requested. Claims 1, 10, and 17 have been amended. Claims 2-4, 11-13, and 18-22 have been cancelled. Claims 23-24 have been added. Claims 1, 5-10, 14-17, and 23-24 remain pending in this application.

In section 1 of the Office Action, the Examiner objects to the drawings. More specifically, the Examiner objects to Fig. 3, reference numeral 316, since it is not mentioned in the specification. In response, Applicants have removed the reference character from Fig. 3, in order to address the Examiner's concerns.

In section 2 of the Office Action, the Examiner objects to the form of the specification. More specifically, the Examiner states that on page 11, lines 3, 12 and 14, reference numeral 102 should be 112. Applicants respectfully submit that the Specification on page 11, lines 3, 12, and 14 already correctly refers to reference character 112. However, Figure 2 incorrectly contains the reference character 102 when referring to the digital image. As a result, Applicants have amended Fig. 2 to now refer to the digital image as reference character "112", rather than "102". Applicants respectfully submit that this change should fully address the Examiner's concern with regard to this objection.

In section 3 of the Office Action, the Examiner objects to the form of the specification. More specifically, the Examiner objects to the specification because it contains an embedded hyperlink and/or other form of browser-executable code (page 10, lines 5 and 14). In response, Applicants have amended the specification (i.e., removed the embedded hyperlink) to address the Examiner's concerns.

In section 4 of the Office Action, the Examiner rejects claims 17-22 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. More specifically, the Examiner states that a signal, which is a form of energy, does not fall within the four categories of patent eligible subject matter. The Examiner further states, with regard to claim 19, that a transmission media transmits signals, such as a network or optical cable, which also does not fall within the four categories of patent eligible subject matter. In response, Applicants have amended claim 17 to now refer to "tangible computer-readable recordable media" in order to address the concerns of the Examiner. Applicants have also cancelled claim 19, to address the concerns of the Examiner. Applicants now submit that claim 17, as amended, overcomes the 35 U.S.C. § 101 rejection.

In section 6 of the Office Action, the Examiner rejects claims 1-18 and 20-22 under 35 U.S.C. §102 as being anticipated by U.S. Patent 6,958,821 by McIntyre. In response, Applicants have amended claims 1, 10, and 17 to overcome this rejection. More specifically, applicants have amended claims 1, 10, and 17 to now include the following limitations with regard to how the analysis of the image is performed: "wherein the analyzing of the selected digital image involves object recognition within the selected digital image, text recognition within the selected digital image, and reading consumer characteristic metadata associated with the digital image". Applicants respectfully submit that these amendments to the claims now place the remaining claims of the patent application in condition for allowance for reasons stated more specifically below.

The McIntyre reference (i.e., U.S. Patent 6,958,821), provides a digital imaging algorithm which can make intelligent direct advertising decisions by analyzing the image content of consumer digital images (Specification, column 2, lines 14-17). This is achieved by first scanning a hard copy of an image provided by a user to provide a digital image and sending such image to a memory location. Next, the scanned digital image is automatically analyzed to determine the likelihood that materials related to products will be of interest to the user by recognizing features which relate to the product of users, such features being selected from the group consisting of product trademarks, product trade dress, and other products which are related to the third party products. Finally, the algorithm selects one of more items of product materials based on their likelihood of interest to the user and sending them to the user for display or printing (Specification, column 2, lines 27-40).

Claims 1, 10, and 17 of the present invention, as amended, now specifically claim that the analysis of the digital image involves: 1) object recognition; 2) text recognition; and 3) reading consumer characteristic metadata from the image. Applicants respectfully submit that the McIntyre reference does not provide the totality of the three types of analysis now claimed by the present invention.

With regard to reading consumer characteristic metadata from the image, the present invention describes metadata, in the form of a digital watermark embedded within the image, incorporating information such as the name of the photographer, the location of the photograph, the data the photograph was taken, the focus distance, and the zoom ratio used to take the photograph (specification, page 11, lines 4-9). Digital watermarking technology is a well-known technique for hiding or embedding information (such as metadata) within a digital image. The embedded information (such as the photographer's name, location, and photograph characteristics) is invisible. However, it can be detected or extracted with special computer routines (Specification, page 10, lines 15-19).

The McIntyre reference is concerned only with the analysis of depictive features (i.e., the image itself), not the analysis of invisible metadata embedded within the image. As stated in McIntyre, column 14, lines 43-48, “Each input digital image is analyzed to build its representation. A digital image or a digital image of product trademarks, product trade dress, and other products which are related to the third party products can be represented in terms of several different **depictive features such as color, texture and color composition**”. Thus, McIntyre relies on the detection and analysis of depictive visual objects within the query digital image (such as color, texture and color composition) when determining the similarity of the query digital image to a database digital image containing known visual objects. Thus, McIntyre is limited to depictive (visual) feature-based image comparisons, while the present invention can provide analysis of non-depictive (non-visual) metadata information containing consumer characteristics within a digitally watermarked digital image. The present invention can then use this consumer characteristic metadata, alone or in combination with object analysis and text analysis, to generate a targeted advertisement.

The Examiner states, that with regard to claims 4, 12, and 22, McIntyre discloses that the analyzing of the selected digital image for one or more consumer identifying characteristics involves reading metadata associated with the selected digital image, referencing column 18, line 57 to column 19, line 6. Applicants respectfully disagree that the cited passage discloses analyzing a selected digital image for one or more consumer identifying characteristics. The passage cited by the Examiner merely refers to the fact that image feature representations (metadata) are stored into a database. The passage has nothing to do with the analysis of the digital image, rather it is referring to the post processing done after the analysis has already been performed and image feature representations have been extracted.

Further, image feature representations are defined as depictive features, as shown by the following passage from McIntyre:

Details of the Image Feature Representation Phase

The key steps of the image feature presentation phase are shown in Fig. 7. Each input digital image is analyzed to build its representation. A digital image or a digital image of product trademarks, product trade dress, and other products which are related to the third party precuts can be represented in terms of several different depictive features such as color, texture, and color composition. (Specification, column 14, lines 40-48)

Thus, image feature representations are built in McIntyre from depictive (visual) features, not from non-visual metadata of consumer identifying characteristics. This is further reinforced within the passage from McIntyre cited by the Examiner at column 19, lines 57-60, which states, "After generating the perceptually significant feature-based image feature representation, the next step is to insert the digital image and the associated representation into the corresponding database and appropriate index structures". Once again, the image feature representations are visual features (i.e., perceptually significant), not non-perceptual digital watermarked metadata.

Thus, the "metadata" cited by the Examiner is not "consumer characteristic" metadata as defined and claimed in the present invention (e.g., photographer name, location, photographer's address, etc.), instead it is depictive information derived from the visual aspects of the digital image itself (i.e., colors, textures, and color composition).

For these reasons, claims 1, 10, and 17, as amended, are now submitted by Applicants as allowable over the cited reference, and Applicants respectfully request that they be passed to issuance. Also, dependent claims 5-9 and 14-16 rely either directly or indirectly from claims 1, 10, and 17, which for reasons stated above, are now believed to be in condition for allowance. Thus, dependent claims 5-9 and 14-16 are also now believed to be in condition for allowance as well.

Applicants have added two new claims (i.e., claims 23 and 24) directed to providing consumer characteristic metadata in the form of a digital watermark. Support for these new claims may be found in the Specification, page 11, lines 1-9, and page 10, lines 15-28.

Appl. No. 10/624,852
Amdt. Dated August 16, 2007
Reply to Office Action of May 16, 2007

In view of the foregoing comments and amendments, the Applicants respectfully submit that all of the pending claims (i.e., claims 1, 5-10, 14-17, and 23-24) are in condition for allowance and that the application should be passed to issue. The Examiner is urged to call the undersigned at the below-listed telephone number if, in the Examiner's opinion, such a phone conference would expedite or aid in the prosecution of this application.

**CERTIFICATE OF ELECTRONIC
TRANSMISSION**

I hereby certify that this correspondence and any enclosures are being electronically transmitted via EFS-WEB on the date indicated below.

August 16, 2007
(Date)
Debra A. Peterson
Debra A. Peterson

Respectfully submitted,

By: James R. Nock
James R. Nock, Attorney
Attorney Reg. No.: 42,937
IBM Corporation, Dept 917
3605 Highway 52 North
Rochester, MN 55901-7829
Telephone: (507) 253-4661

Appendix – Replacement Sheets for Figs. 2 & 3